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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,411	10/29/2001	Zachary C. Hoisignton	7784-000244	7199

27572 7590 04/10/2003
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EXAMINER

PIASCIK, SUSAN L

ART UNIT	PAPER NUMBER
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3643

DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/055,411

Applicant(s)

HOISIGNTON ET AL

Examin r

Susan L Piascik

Art Unit

3643

-- The MAILING DATE of this communication appears n the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 16 December 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new grounds of rejection.

The Examiner has reviewed the arguments pertaining to the last office action and has modified the rejections with additional references. The Examiner maintains that the applicant's invention would have been obvious to one having ordinary skill in the art at the time of the invention given the prior art of record.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-3, 20-22 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitener ('455) in view of Scherer.

In regards to **claim 1**, Whitener ('455) teaches an aircraft comprising a fuselage (1') defining a central storage cavity having a length and a height. Also taught is a wing assembly (2') extending through and fixedly coupled to the fuselage (1') in an unswept manner and providing the aircraft with a wingspan. The wing assembly (2') defines a pair of wing storage

Art Unit: 3643

cavities (7a-e) each of which being located on an opposite side of the fuselage (1'). The wing assembly (2') has a moderate aspect ratio which permits the aircraft to be flown efficiently in and out of ground effect (see column 8, lines 1-3). The aircraft comprises an altitude control system (unnumbered) for controlling the altitude of the aircraft when the aircraft is flown in ground effect, wherein the altitude control systems operable in an active mode for maintaining an altitude of the aircraft at about a predetermined altitude above a surface over which the aircraft is traveling. The central storage cavity and wing storage cavities are configured to receive a cargo that includes intermodal re-usable cargo containers (41). Though, Henry fails to cite a specific value for length, height and width of the fuselage or the length of the wingspan, it would have been obvious to one having ordinary skill in the art at the time of the invention to determine these numerical values, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art.

Whitener fails to teach a plurality of independent and steerable landing gear on the fuselage. However, Scherer teaches an aircraft a plurality of independent and steerable landing gear (14-17) is coupled to the fuselage (unnumbered) and operatively distributing the weight of the aircraft over a predetermined area. Therefore, one having ordinary skill in the art at the time of the invention would have found it obvious to modify the aircraft disclosed by Whitener, to include independent landing gear, as shown by Scherer, in order to provide more efficient landing gear for heavier aircraft so a pilot may more easily control the airplane and also prevent tire wear.

Regarding **claims 2 and 3**, Whitener, as modified, discloses the claimed invention except for specifying the length of the wingspan. However, it would have been obvious to one having

Art Unit: 3643

ordinary skill in the art at the time of the invention to determine these numerical values, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art.

Regarding **claim 20**, Whitener, as modified, teaches an aircraft wherein the fuselage includes a pressurized cockpit (unnumbered).

In regards to **claim 21**, Whitener, as modified, teaches an aircraft wherein the plurality of independently steerable landing gear (9) are distributed over substantially the entire length of the central storage cavity.

Regarding **claim 22**, Whitener, as modified, discloses the claimed invention except for specifying the angle through which the landing gear can be steered. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to determine this angle, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art.

Regarding **claim 26**, Whitener, as modified, discloses the claimed invention except for specifying the value of the aspect ratio of the wing assemblies. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to determine this numerical value, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art.

In regards to **claim 27**, Whitener teaches an aircraft wherein the wing assembly includes a wingbox structure that extends through the fuselage. The wingbox structure includes a pair of vertical spaced-apart wing panels. The wing panels intersect the central storage cavity and

Art Unit: 3643

cooperate with as associated pair of floor structures to segregate the central storage cavity into an upper fuselage storage cavity and a lower fuselage storage cavity. See Figures 13 and 14.

Regarding **claim 28**, Whitener teaches an aircraft wherein at least one portion of the wingbox structure that is disposed within the central storage cavity does not include a vertical shear web that connects the wing panels.

Claims 4-6 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitener ('455) in view of Scherer and further in view of Henry.

In regards to **claim 4**, Whitener, as modified, fails to teach an aircraft with drooping wings. However, Henry teaches an aircraft wherein the wing assembly (103) that droops downwardly in a laterally outward direction from the fuselage (17). See Figure 19. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the wings disclosed by Whitener, to droop downwardly, as shown by Henry, in order to enhance the ground effect flight pattern.

In regards to **claim 5**, Whitener, as modified, teaches an aircraft wherein the wing assembly includes a wing body (103) and a pair of wing tips (103'). The wing body is fixedly coupled to the fuselage and the wing tips are moveably coupled to the opposite ends of the wing body and moveable between an extended position, wherein the wing body and wing tips are positioned in a generally horizontal aligned relation, and a retracted position. See Henry Figure 20.

Regarding **claim 6**, Whitener, as modified, discloses an aircraft wherein the wing tips are hingedly coupled to the wing body. See Figure 9.

Art Unit: 3643

Regarding **claim 25**, Whitener, as modified, fails to teach an aft T-tail. However, Henry discloses an aircraft wherein the fuselage (17) includes an aft T-tail. See Figure 6. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the fuselage disclosed by Whitener, to include an aft T-tail, as shown by Henry, in order to enhance the flight characteristics of the aircraft.

Claims 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Widener in view of Scherer and further in view of Blum.

In regards to **claim 7**, Whitener fails to teach an aircraft wherein at least a position is configured with an “anti-suck down” shape. However, Blum teaches an aircraft having at least a portion configured to resist “suck-down.” Therefore, one having ordinary skill in the art at the time of the invention would have found it obvious to modify the aircraft of Widener, as modified, to include an “anti-suck down” formation, as taught by Blum, to enhance the ground effect characteristics of the airplane.

In regards to **claim 8**, Whitener, as modified, teaches an aircraft wherein the wing assembly is configured with a substantially flat-bottomed airfoil.

In regards to **claim 9**, Whitener, as modified, teaches an airplane wherein the wing assembly is configured with a droop wing dihedral wherein a tip portion of each end of the wing assembly effectively limits the aircraft from being lowered to an altitude that is within a suck down altitude. See Blum Figure 3.

Art Unit: 3643

Regarding **claim 10**, Whitener, as modified, teaches a ground effect airplane wherein the fuselage includes a fuselage nose that is drooped in side view such that the curvature on the underside of the fuselage is limited. See Blum Figure 1.

In regards to **claim 11**, Whitener, as modified, teaches an aircraft wherein the fuselage nose tapers more in plan view than in side view so as to limit flow acceleration on the underside of the fuselage nose.

Regarding **claim 12**, Whitener, as modified, teaches an aircraft wherein the fuselage portion includes an aft fuselage portion that is configured with a limited upsweep to thereby limit flow acceleration. See Figure 3.

In regards to **claim 13**, Henry teaches an aircraft wherein the fuselage (17) includes a necked-down portion that is configured to limit an area of the fuselage that is subject to a suck-down effect.

Claims 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitener in view of Scherer and further in view of Gevers.

In regards to **claim 14**, Whitener, as modified, teaches an aircraft further comprising a plurality of wing-mounted drive units (8). See Figure 20. Whitener fails to teach the drive units including propeller clusters. However, Gevers teaches an aircraft having propeller clusters (column 23, lines 39-40). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the propellers of Henry, with the propeller clusters, taught by Gever, in order to prevent the aircraft from “yawing” in one particular direction.

In regards to **claim 15**, Whitener, as modified in the previous claim, teaches an aircraft wherein each propeller cluster includes a first propeller that is rotatable in a first rotational directions and a second propeller that is rotatable in a second rotational direction opposite the first direction. See Gever column 23, lines 39-54.

Regarding **claim 16**, Whitener, as modified, teaches an aircraft wherein each propeller cluster includes a plurality of co-axial propellers and each drive unit includes at least one clutch mechanism. The clutch mechanism is operable for selectively coupling at least one of the co-axial propellers to a source of rotational power. See Gevers column 24, lines 11-29.

In regards to **claim 17**, Whitener, as modified, discloses an aircraft wherein each drive unit includes a plurality of engines that are combined into a single nacelle. See Gevers column 24, lines 1-10.

Regarding **claim 18**, Whitener, as modified, teaches an aircraft wherein each propeller cluster includes a plurality of co-axial propellers and each drive unit includes a gearbox, a plurality of engines and at least one clutch mechanism. The gearbox includes an input and an output portion. The input portion is configured to receive a rotational input from each of the engines and the output portion is configured to output a rotational output to each of the propellers. The clutch mechanism is operable for selectively coupling at least one of the engines to the input portion of the gearbox.

In regards to **claim 19**, Whitener, as modified, teaches an aircraft wherein the clutch mechanism is operable in a first mode, wherein only a first one of the engines is coupled to the input portions, and a second mode, wherein only a second one of the engines is coupled to the input portion, and a third mode, wherein both of the engines are coupled to the input portion.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Whitener in view of Scherer and further in view of Spence.

In regards to **claim 23**, Whitener, as modified, teaches the claimed invention except for specifying a hinged nose portion. However, Spence teaches an aircraft wherein the fuselage includes a nose portion and a fuselage body, wherein the nose portion is hingedly coupled to the fuselage body. See Figures 1-3. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the fuselage of Henry, with the hinged nose structure, taught by Spence, in order to provide an additional way to load cargo onto the aircraft.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Whitener in view of Scherer and further in view of Roessner et al.

In regards to **claim 24**, Henry teaches the claimed invention except for specifying a conveyor system. However, Roessner et al. teaches an aircraft comprising a transport system that is fixedly connected to the fuselage and includes a conveyor portion. The conveyor portion of the transport mechanism is configured to facilitate loading and unloading of cargo into the central storage and wing cavities. See Figure 1. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the fuselage of Henry, with a conveyor portion, taught by Roessner et al., in order to provide an efficient and effective way to load and unload cargo onto the aircraft.

Art Unit: 3643

Citation of Relevant Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of art with respect to ground effect aircraft:

U.S. Pat. No. 4,725,020 to Whitener

Conclusion

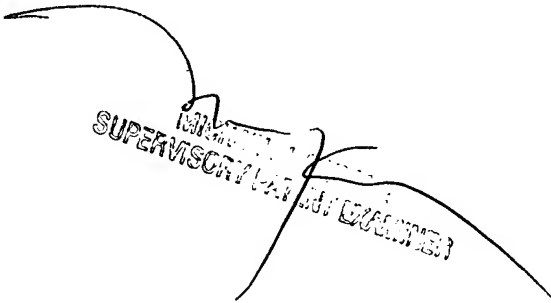
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan L Piascik whose telephone number is (703)305-0299. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon can be reached on (703)308-2574. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-7687 for regular communications and (703)305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-7687.

slp

April 7, 2003

A handwritten signature is written over a rectangular stamp. The stamp contains the word 'SUPERVISOR' on the top line and 'EXAMINED' on the bottom line. The signature is written in a cursive style.